DRAWING AMENDMENTS

Figure 1 has been corrected in accordance with the Examiner's objections, particularly pointing out that the label 10 is directed to satellites 20A, 20B and 20C.

In Figure 2 the label 80 has been corrected to 80A.

In the specification beginning on page 9, line 13, the labels as set out in the drawings have necessitated changes in the specification as indicated above in "Specification Amendments".

REMARKS

The Examiner has objected to the drawings under 37 CFR 1.83(a) because they fail to show labels in Figs. 1 and 2 as described in the specification.

Applicants have amended Figs. 1 and 2 and replacement sheets are submitted herewith. Applicants have also made the necessary corrections to the specification.

The Examiner has objected to claims 1, 6 and 42 because they recite the following limitation: "routing [[said]] individual ones of said code division multiplexed channel blocks to their destination in accordance with the individual predetermined spreading waveforms." The Examiner states that it is not clear as to in which location the limitation "routing" is carried out or performed.

The routing, as the claims read now, is in accordance with the individual predetermined spreading waveforms as set out in the claims, thereby obviating this objection. Applicants respectfully submit it is inappropriate to request correction/ clarification calling for unnecessary limitations in the claims in the absence of prior art since the claims are clear on their face.

Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Harms et al (U. S. Patent No. 6,493,376), hereinafter referred to as Harms.

The Examiner states that regarding claims 1 and 42, Harms discloses, in reference to Fig. 1, "a method for processing communications in a satellite telecommunications system" (col. 1, lines 12-20), comprising the steps of:

- providing a gateway and a satellite (14 and 16) coupled together through at least one feeder link (42, 46 and 48, forward link, col. 2, lines 40-45), said feeder link conveying a plurality of channel blocks, (refer to Fig. 1, col. 7, lines 20-32, "channelizing codes", col. 1, line 66 to col. 2, line 5);
- code division multiplexing each of said plurality of channel blocks using a predetermined spreading waveform selected to indicate an origin and a destination of each of said plurality of channel blocks (channelizing orthogonal code using PN chip rate, refer to col. 2, lines 3-20);
- transmitting said code division multiplexed channel blocks; and routing said individual ones of said channel blocks to their destination in accordance with the individual predetermined spreading waveforms ("The system users communicate through gateways and satellites, or terrestrial base stations (also referred to as cell-sites or cells) using CDMA spread spectrum communication signals", refer to col. 1, lines 40-45, using preselected PN spreading code -- modulation signals, refer to col. 4, lines 40-45, col. 4, lines 53-55.

Applicants respectfully submit that at col. 1, lines 12-20 of Harms there is stated "The present invention relates to spread spectrum communication systems, such as wireless data or telephone systems, and satellite communication systems. More particularly, the invention relates to a method and apparatus for generating, identifying, and acquiring spread spectrum communication signals using layered or overlayed PN spreading and identifier codes having differing periods or chip rates."

Applicants respectfully submit that at col. 2, lines 40-49 there is stated "Typical CDMA spread spectrum communication systems contemplate the use of coherent modulation and demodulation techniques for forward link user terminal communications. In communication systems using this approach, a 'pilot' signal (or other known signal) can be used as a coherent phase reference for gateway- or satellite-to-user and base station-to-user links. That is, a pilot signal, which typically contains no data modulation, is transmitted by a base station or gateway throughout a given region of coverage." Further, Applicants respectfully submit at col. 7, lines 20-32 relied upon by the Examiner it is recited "An exemplary wireless communication system, such as a wireless telephone system, in which the present invention is used is illustrated in Fig. 1. Communication system 10 illustrated in Fig. 1 uses spread spectrum modulation techniques in communicating between remote or mobile user terminals and system gateways or base stations. In the portion of the communication system illustrated in Fig. 1, one base station 12 and two satellites 14 and 16, and two associated gateway or hubs 24 and 26 are shown for effecting communications with two mobile stations or user terminals 20 and 22, or other stations. The present invention may be useful in either or both satellite or terrestrial based communication systems, as will be readily apparent to those skilled in the art." Further, at col. 1, line 66 to col. 2, line 5 there is stated "In a typical CDMA spread-spectrum communication system, channelizing codes are used to discriminate between signals intended for different users within a cell or between user signals transmitted within a satellite beam, or sub-beam, on a forward link. That is, each user transceiver has its own orthogonal channel provided on the forward link by using a unique 'covering' or 'channelizing' orthogonal code."

Applicants respectfully submit that no where in these recitations is there taught, suggested or implied providing a plurality of channel blocks which are code division multiplexed using a predetermined spreading waveform selected to indicate an origin and a destination of each of said plurality of channel blocks and thereafter transmitting the CDMA channel blocks to their destination in accordance with individual predetermined spreading waveform.

Harms is directed to "A technique for spreading information signals in a spread spectrum communication system to provide increased signal acquisition speed. A first PN

"spreading code or code set is used to spread information signals along with a second PN spreading code sequence or function. The second PN code is synchronized with the first PN spreading code, but has a larger code period so that each code chip of the second PN code extends over the entire period of the first PN code. The longer period spreading code forms an outer code which helps provide unambiguous beam identification and easily acquired frame timing in the presence of dynamically changing signal path delay, improving signal acquisition."

Applicants respectfully submit that they provide a method for processing communications in a satellite telecommunications system which employs channel blocks comprised of numerous code division multiple access channels possibly of various bandwidths that are frequency division multiplexed together which are then code division multiplexed employing a predetermined spreading waveform selected to indicate an origin and a destination of each of the plurality of channel blocks and thereafter transmitting the CDMA multiplexed channel blocks to their destination in accordance with an individual predetermined spreading waveform. This system and method are no where taught, suggested or implied in Harms '376.

Further, Applicants respectfully submit that at col. 2, lines 3-20 there is disclosed that the user transceiver has its own orthogonal channel provided on the forward link by using a unique covering or channelizing orthogonal code. Walsh functions are generally used to implement the channelizing codes....PN code based modulation techniques used in CDMA signal processing allow spectrally similar communication signals to be quickly differentiated. This allows signals traversing different propagation paths to be readily distinguished from each other, provided path length differential causes relative propagation delays in excess of the PN code chip period. Applicants respectfully submit that this does not teach, suggest or imply employing a predetermined spreading waveform selected to indicate an origin and a destination of each of the plurality of channel blocks as required by claims 1 and 42.

Further, with regard to bullet three at col. 1, lines 40-45, Applicants respectfully conclude there is merely disclosed "The system users communicate through gateways and satellites, or terrestrial base stations (also referred to as cell-sites or cells) using CDMA spread spectrum communication signals.

"In a typical spread-spectrum communication system, one or more sets or pairs of preselected pseudorandom noise (PN) code sequences are used to modulate or 'spread' user information signals over a predetermined spectral band prior to modulation onto a carrier for transmission as communication signals." Applicants respectfully submit this does little to cure the deficiencies as noted above with regard to the channel blocks employing the spreading waveform to indicate an origin and a destination of each of plurality of

channel blocks and thereafter transmitting in accordance with the predetermined spreading waveform as required by claims 1 and 42. Furthermore, Applicants respectfully submit at col. 4, lines 40-45 and at col. 4, lines 53-55 there is disclosed "digital information signals are bandwidth spread using a preselected pseudorandom noise (PN) spreading code to produce spread spectrum modulation signals. An exemplary communication system is a wireless data or telephone system that uses multiple satellite repeaters to receive communication signals from gateway type base stations and transfer them to one or more of a plurality of mobile or portable stations having receivers...The encoded signals may be combined with one or more orthogonal functions to provide channelization of the information signals." Applicants respectfully submit that this does little to cure the above-noted deficiencies at those passages relied upon by the Examiner which have been discussed above.

The Examiner goes on to state that with regard to claims 2-4, Harms discloses the following limitations:

- wherein said at least one feeder link is a return feeder link, as in claim 2, refer to 42, 46 and 48, col. 8, lines 15-18.
- wherein said at least one feeder link is a forward feeder link, as in claim 3, refer to 42, 46 and 48, col. 8, lines 15-18.
- wherein said destination comprises at least a beam of a forward service link, as in claim 4, refer to col. 2, lines 2-5, col. 9, line 2.

Applicants respectfully submit that at col. 8, lines 15-18 of Harms there is disclosed "The arrowheads on these lines illustrate exemplary signal directions for each communication link, as being either a forward or a reverse link, and are present only for purposes of clarity and not as indicating any actual signal patterns or physical restrictions." Although Applicants do not necessarily agree that at least one feeder link is a return feeder link as recited in this recitation and further seen in elements 42, 46 and 48, claim 2 is patentably distinguishable over Harms for the reasons recited above with regard to claim 1 which are hereby respectfully incorporated by reference.

Applicants respectfully submit that at col. 8, lines 15-18 set out above and further in the Examiner's reference elements 42, 46 and 48, Applicants do not necessarily agree that at least one feeder link is seen to be a forward feeder link as contended by the Examiner. However, claim 3 is nevertheless patentably distinguishable over Harms for the reasons set out above with regard to claim 1 which are hereby respectfully incorporated by reference.

With regard to claim 4, at col. 2, lines 2-5 and col. 9, line 2, wherein it is stated, respectively, "That is, each user transceiver has its own orthogonal channel provided on the forward link by using a unique 'covering' or 'channelizing' orthogonal code." and "For

"satellite systems, this signal is transferred within each satellite 'beam' and originates with gateways being serviced by the satellite.", Applicants do not necessarily agree as the Examiner contends that this recites a destination comprising at least beam of a forward service link; nevertheless, claim 4 is seen to be patentably distinguishable over Harms for reasons disclosed above with regard to claim 1 which are hereby respectfully incorporated by reference.

Allowable Subject Matter

The Examiner has stated that claims 5-41 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants respectfully submit that this request appears to be inappropriate in view of the fact that claims 5, 9, 14, 19, 23, 28, 33 and 38 are independent and that none of the claims 5-41 are dependent upon a rejected base claim. Clarification is respectfully requested.

In the previous Office Action dated November 2, 2004, the Examiner allowed claims 5-8 and 19-22, and indicated as allowable claims 9-18 and 23-41 if claims 13, 18, 25, 32, 37 and 38 were rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in the Office Action and to include all of the limitations of the base claim and any intervening claims. Applicants amended these claims in accordance with the Examiner's suggestions, yet the Examiner states that these very same suggested amendments give rise to the final rejection. Clarification and/or withdrawal of the final rejection is respectfully requested.

Response to Examiner's positions re Applicants' arguments filed February 4, 2005

The Examiner has stated that Applicants argue that no where in these recitations is there taught, suggested or implied providing a plurality of channel blocks which are code division multiplexed using a predetermined spreading waveform selected to indicate an origin and a destination of each of said plurality of channel blocks and thereafter transmitting the CDMA channel blocks to their destination in accordance with individual predetermined spreading waveform.

The Examiner states in response that Harms discloses, in reference to Figs. 1 and 3, the channel blocks, referring Applicants to col. 3, lines 59-61, CDMA, col. 1, lines 65-67, predetermined spreading waveform, (referring to "That is, each user transceiver has its own "orthogonal channel provided on the forward link by using a unique 'covering' or 'channelizing' orthogonal code....PN code based modulation techniques used in CDMA

signal processing allow spectrally similar communication signals to be quickly differentiated."), directing Applicants' attention to col. 2, lines 3-30; a more detailed representation of an exemplary block correlator 142 is illustrated in Fig. 12. When a block of decoded outer PN code chips is transferred to correlator 142, where block of data (channel block) is associated. In Fig. 3 PN code 80 is used to combined with data. It also shows its origin 78 to destination 76 in Fig. 3, because PN is correlated at source of data and orthogonal is used to identify base station according to the Examiner.

The Examiner further states, however, Harms' second reference (U. S. Patent No. 6,765,953) discloses a set of preselected pseudorandom noise (PN) code sequences is used to modulate (i.e., "spread") information signals over a predetermined spectral band prior to modulation onto a carrier signal for transmission as communication signals. According to the Examiner, PN spreading, a method of spread-spectrum transmission that is well known in the art, produces a signal for transmission that has a bandwidth much greater than that of the data signal. Further the Examiner submits, in a satellite forward communications link (that is, in a communications link originating at a gateway (origin) and terminating at a user terminal (destination)), PN spreading codes are used to discriminate between signals transmitted by a gateway over different beams, and to discriminate between multipath signals. The Examiner concludes that these PN codes are usually shared by all communications signals within a beam and further concludes that in light of the above explanation, arguments by Applicants are not persuasive.

Applicants respectfully submit that in Fig. 1 there is illustrated a schematic overview of an exemplary wireless communication system of the invention described in Harms '376 and in Fig. 3 there is illustrated a transmit modulator for the transmission stage of Fig. 2 which in turn illustrates a block diagram of a transmission stage for a gateway. Applicants respectfully submit that at col. 3, lines 59-61 there is stated "Many systems package information bearing channels into blocks of bits, or 'frames', where frame synchronization is required before the bits can be used."; and at col. 1, lines 65-67 it is stated "In a typical CDMA spread-spectrum communication system, channelizing codes are used to discriminate between signals in intended for different users within a cell or between user signals transmitted within a satellite beam, or sub-beam, on a forward link." Further, Applicants respectfully submit at col. 2, lines 3-30 there is recited "That is, each user transceiver has its own orthogonal channel provided on the forward link by using a unique 'covering' or 'channelizing' orthogonal code. Walsh functions are generally...

"PN code based modulation techniques used in CDMA signal processing allow spectrally similar communication signals to be quickly differentiated...."

Applicants respectfully submit that at col. 23, line 51 there is recited with respect to Fig. 12 "When a block of decoded outer PN code chips is transferred to correlator 142, the

individual chips are stored in consecutive memory locations DATA(0) through DATA(47) in a storage or memory element 144 also referred to as a data block."

Regarding Fig. 3, Applicants respectfully submit that at col. 11, line 4 et seq. it is stated "In the alternative, a non-linear encryption generator, such as an encryptor using the data encryption standard (DES) and a user specific key, may be utilized in place of PN generator 80 as desired."

At col. 10, line 61 et seq. it is stated "Before or after being covered by the Walsh code, the interleaved data may also be multiplied with a binary PN_u sequence in a second logic element 78 connected in series with either the input or output of multiplier 76."

Applicants respectfully submit that the recitations relied upon by the Examiner as recited above do not teach, suggest or imply providing a plurality of channel blocks which are code division multiplexed using a predetermined spreading waveform selected to indicate an origin and a destination of each of said plurality of channel blocks and thereafter transmitting the CDMA channel blocks to their destination in accordance with individual predetermined spreading waveforms as required by the claims of the instant invention. Applicants respectfully contend that the suggestion by the Examiner with regard to "preselected pseudorandom noise PN code sequences is used to modulate (i.e., spread) information signals over a predetermined spectral band", "PN spreading a method of spread-spectrum transmission", and "originating on a gateway (origin) and terminating on a user terminal (destination)" do little to cure the deficiencies of the recited passages in the Harms reference.

In view of the above remarks and amendments, Applicants respectfully submit that all of the claims presently under prosecution have been seen to contain non-obvious patentable subject matter and to be patentably distinguishable over Harms '376, the art of record.

Accordingly, Applicants respectfully request that this application be reviewed and reconsidered in view of the above remarks and amendments and that a Notice of Allowance be issued at an early date.

Respectfully submitted,

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